said first vibrating electrode is disposed on a first side of said piezoelectric substrate perpendicular to a thickness direction;

said second vibrating electrode is disposed on a second side of said piezoelectric substrate perpendicular to the thickness direction, and faces to said first vibrating electrode;

said first pad and said second pad are respectively disposed in predetermined area having a small vibration displacement on at least one side of said piezoelectric substrate perpendicular to the thickness direction;

said first pad is made of an electrical conductor and electrically connected to said first vibrating electrode; and

said second pad is made of an electrical conductor and electrically connected to said second vibrating electrode, and

wherein said substrate has at least two terminal electrodes on a surface thereof, and

wherein said piezoelectric resonator is mounted on the surface of said substrate, and

said first pad and said second pad are connected to said two terminal electrodes.

REMARKS

Favorable reconsideration of this application in light of the following discussion is respectfully requested.

Claims 1-28 are presently active in this case; Claims 1, 2, 11, and 13 having been amended; Claims 1 and 13 amended by way of the present amendment.

In the outstanding Office Action, Claims 1, 2, 11, and 13 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,247,964 to Yoshida; Claims 3-10 and 12 were objected to as being dependent on a rejected base claim, but would be allowable

if rewritten in independent form to include all of the limitations of the base claim and any intervening claims; and Claims 14-28 were allowed.

First, Applicants wish to thank Examiner Addison and Primary Examiner Dougherty for the March 25, 2003 interview at which time the outstanding issues in this case were discussed. During the interview, amendments and arguments substantially as indicated in this response were discussed. While no agreement was reached, the examiners indicated that they would fully consider the presented amendments and arguments when submitted in a formal response.

Applicants also wish to thank the Examiner for allowance of Claims 14-28 and indication that Claims 3-10 and 12 would be allowable if rewritten in independent form to include all of the limitations of the base claim and any intervening claims. However, Applicants wish to maintain Claims 3-10 and 12 in dependent form at this time since Applicants believe that the independent claim from which these claims depend is patentable over the cited references.

Turning now to the merits, in order to expedite issuance of a patent in this case, Applicants have now amended Claims 1 and 13 to clarify the patentable features of the claimed invention over the cited references. Specifically, Claims 1 and 13, as amended, recite a piezoelectric resonator having a piezoelectric substrate, a first vibrating electrode, a second vibrating electrode, a first pad, and a second pad. Also recited is that the piezoelectric substrate is a hexahedron, the first vibrating electrode is disposed on a first side of the piezoelectric substrate perpendicular to a thickness direction, the second vibrating electrode is disposed on a second side of the piezoelectric substrate perpendicular to the thickness direction, and faces to the first vibrating electrode, and that ***the first pad and the second pad are respectively disposed in predetermined area having a small vibration displacement on***

at least one side of the piezoelectric substrate perpendicular to the thickness direction. The first pad is made of an electrical conductor and electrically connected to the first vibrating electrode, and the second pad is made of an electrical conductor and electrically connected to the second vibrating electrode.

In contrast, the cited reference to Yoshida discloses a piezoelectric resonator for generating a third order harmonic wave of a vibration mode. As discussed at col. 6, lines 24-48, the floating electrode 17 of Yoshida provides the function of suppressing the first order harmonic wave of the vibration mode in favor of the third order wave. As discussed in the March 25th interview, this suppression of a harmonic is contrary to the objective of the present invention, which reduces the suppression of a vibration mode of the device by placing the first and second pads in a predetermined position as now clarified in Claims 1 and 13. Thus, Yoshida does not disclose the claim limitation of the first pad and the second pad are respectively disposed in predetermined area having a small vibration displacement on at least one side of the piezoelectric substrate perpendicular to the thickness direction.

Applicants further note that the Office Action mentions that the first pad (6a) is made of an electrical conductor and electrically connected to the first vibrating electrode (4), and the second pad (6b) is made of an electrical conductor electrically connecting the second vibrating electrode (4). However, according to Yoshida, both pads (6a) and (6b) are connected to the electrode (4). Therefore, the pads (6a) and (6b) are not corresponding to the claimed first pad and the second pad. Moreover, according to the present invention, the resonator generates a fundamental wave. On the other hand, according to Yoshida, the piezoelectric resonator is adapted to generate third harmonic wave. For these reasons and the reasons noted above, Claims 1 and 13 patentably define over the cited references. Moreover, as Claims 2 and 11 depend from Claim 1, these dependent claims also patentably define over

the cited references. In this regard, Applicants also note that, according to claim 11, the resonator operates in a basic wave thickness extensional vibration mode. This is not mentioned in Yoshida.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. An early and favorable action is therefore respectfully requested.

Respectfully submitted,

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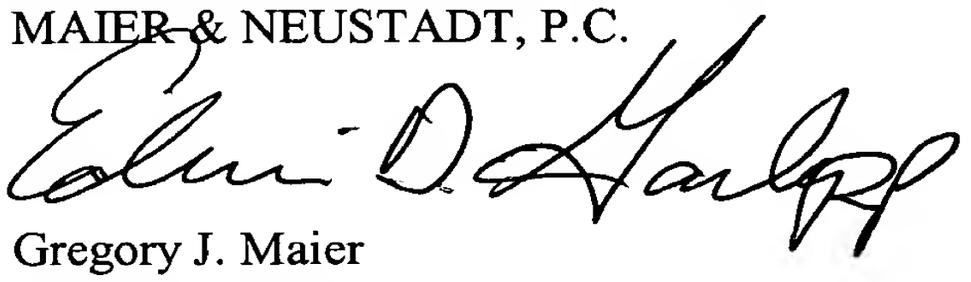

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